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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/830,210	04/21/2004	Mark S. Knighton	4956P017	9038

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EXAMINER	
DANG, DUY M	
ART UNIT	**PAPER NUMBER**
2624	
MAIL DATE	**DELIVERY MODE**
04/15/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/830,210	KNIGHTON ET AL.	
	Examiner	Art Unit	
	Duy M. Dang	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 January 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *20-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *20-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's amendment filed on 1/14/2009 has been entered and made of record.

Information Disclosure Statement

2. The information disclosure statement filed October 1, 2004 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been fully considered. Furthermore, the IDS lacks publication dates for these cited documents.

Response to Arguments

3. Applicant's arguments filed 1/14/2009 have been fully considered but they are not persuasive.

It is noted that the arguments filed on 9/18/2008 and 1/14/2009 are substantially identical and thus the examiner's response will be directed to the latest argument filed on 1/14/2009.

Applicant's amendment to claim 20 overcomes the rejection of claims 20-34 under 35 USC 112(2).

In response to Applicant's arguments with regard to IDS filed on 10/1/2004, the IDS failed to provide (i)a legible copy of each cited foreign patent document; (ii) (i)a legible copy of each non-patent literature publication or that portion which caused it to be listed; and (iii) publication dates for these cited documents.

In response to applicant's arguments with regard to the rejection of claims 20-24 under 35 USC 103, see pages 4-6 of the reply filed on 1/14/2009, the examiner would like to offer the following remarks:

(i)the "12mm" referenced in the rejection section (and described at par. [0029]) refers to the dimension of the region of interest which is part of the virtual input device 100. This region of interest is imaged/captured by the emitting light (emitter 20) and reflecting back (see lines 2-5). Since the region of interest is 12mm (about 0.472 inch) so the separation between any two lights (one emitting light and one reflecting light) can not be more than 12mm or 0.472 inch which is less than claimed "does not exceed 2 inches) (note: imaging a regions of interest has two edges (edge 1 and edge 2) and the separation between two edges is 12mm; thus, separation between emitting light at edge 1 and reflecting light at edge 2 does not exceed 12mm or 0.472 inch).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 20-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sze (US Pub. No. 2002/0060669 A1, Art of record IDS filed on 10/1/2004).

The advanced statements as set forth in paragraph 3 above are incorporated herein.

Regarding claim 20, Sze teaches an apparatus capable of three dimensional (3D) imaging from one vantage point independent of profilometry (see figures 1-2 and 5-7) comprising: a

housing having a physical terminus (see items 20 and 60 depicted in these figures refers to the so called “physical terminus” and the claimed housing is inherently included in the item 10 of figure 1-2 and item 10' of figure 5-7); an image sensing array (ISA) (see item 80 in these figures); and an optical element in optical communication with the ISA (see 60 of figures 1-2 and 5-7), wherein all light received by the apparatus for 3D imaging (see light rays 50 of figure 1 for example) and any light emitted by the apparatus for 3D imaging passes through a physical terminus of the instrument (see light rays 30 of figure 1 for example) at which point a maximum separation between any two light rays used for 3D imaging does not exceed 2 inches (see light rays depicted at 30 and 50 of figure 1. Note that there are four light rays shown in figure 1 so any two light rays shown in figure 1 refer to claimed “any two light rays used for 3D imaging").

While Sze teaches all that are generally claimed as pointed out above, Sze does not explicitly teach the separation between two light rays used for 3D imaging does not exceed 2 inches, Sze teaches "a region of interest may be considered to be a zone that ranges from the vertical plane of virtual input device 100 upward for perhaps 12mm or so. In practice, system 10' seeks to learn when and where a user-control object (e.g. hand 110, stylus or object held by the user 40...coordinate space" (see paragraph [0029]). It would have been obvious to one of ordinary skill in the art to recognize that 12mm does not exceed 2 inches as well as the tip of the stylus would no exceed 2 inches. Thus the separation between any two light received and emitted from stylus does not exceed 2 inches. Furthermore, it would have been obvious to one of ordinary skill in the art to recognize that the separation of any two light rays emitted and received shown in figure 1 does not exceed 2 inches.

Sze further teaches wherein a capture end further comprises an illumination source as required by claim 21 (see 20 of figure 1 and line 2 of paragraph [0003]); wherein the optical element is one of a lens, a reflector, and a light guide as required by claim 22 (see lens depicted at 60 of figures 1-2 and 5-7); wherein three dimensional imaging is independent of time of flight of light reflected from the location to the image sensing array (ISA) as required by claim 23 (see items 80 and light rays 50 shown in figure 1, for example, and there is no dependent between the two); wherein the three dimensional imaging is performed without requiring motion of the physical terminus of the apparatus as required by claim 24 (see figures 1 and 2 for example, there is no motion required for items 60 and/or 20); The apparatus of claim 24 wherein the three dimensional imaging method is stereoscopy (see figure 1 for example, object 40 is circular so the image of object 40 is captured by either object 40 is moving around the 3D imager 10 or 3D imager 10 is moving around the circular object 40 and such moving refers to claimed "stereoscopy"); comprising a wireless data link as required by claim 26 (see stylus shown in figure 7 which is wirelessly connected to imager 10'); wherein the illumination source can vary an incident angle of light impinging on a target surface as required by claim 27 (see figures 1 and 3A-3C. Note that the movement in figure 1 and pointed above as applied to claim 24 generates various incident angle of light impinging on the target surface of the object 40); wherein the three dimensional imaging method performs captures of data from at least two points of view to a target as required by claim 28 (see figures 1-2 and 5-7. For example, two received light rays 50 at item 60 and such movement as discussed above comprising two points of view to the target in order to generate the captured image of th circular object 40); wherein at least two captures are performed sequentially by a same ISA as required by claim 29 (see item 80 of figures 1-2, 5 and

7); a controller to automatically vary an optical path of the light rays used to capture a three dimensional image as required by claim 30 (see CPU of figure 5); a display to visualize the data collected as required by claim 31 (see display at lines 7-8 of paragraph [0030]); wherein visualized data guides a user in the capture of a target surface as required by claim 32 (see menu on a display at lines 8 of paragraph [0030] and figures 5 and 7); wherein the 3D image can be made of a target surface that appears substantially homogeneous unless captured at finer than 300 pixels per inch resolution as measured at the target surface as required by claim 33 (see target surface shown at figures 2, 4A-4C, 5-7; and 100x100 pixel array at paragraph [0009] refers to the so-called "fine than 300 pixel per inches resolution as measured at the target surface") ; and wherein the 3D image can be made of a target surface that appears substantially homogeneous to an unaided human eye as required by claim 34 (see analysis applied to claim 33 above).

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duy M. Dang whose telephone number is 571-272-7389. The examiner can normally be reached on Monday to Friday from 6:00AM to 2:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew C. Bella can be reached on 571-272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

dmd
4/09

/Duy M Dang/
Primary Examiner, Art Unit 2624